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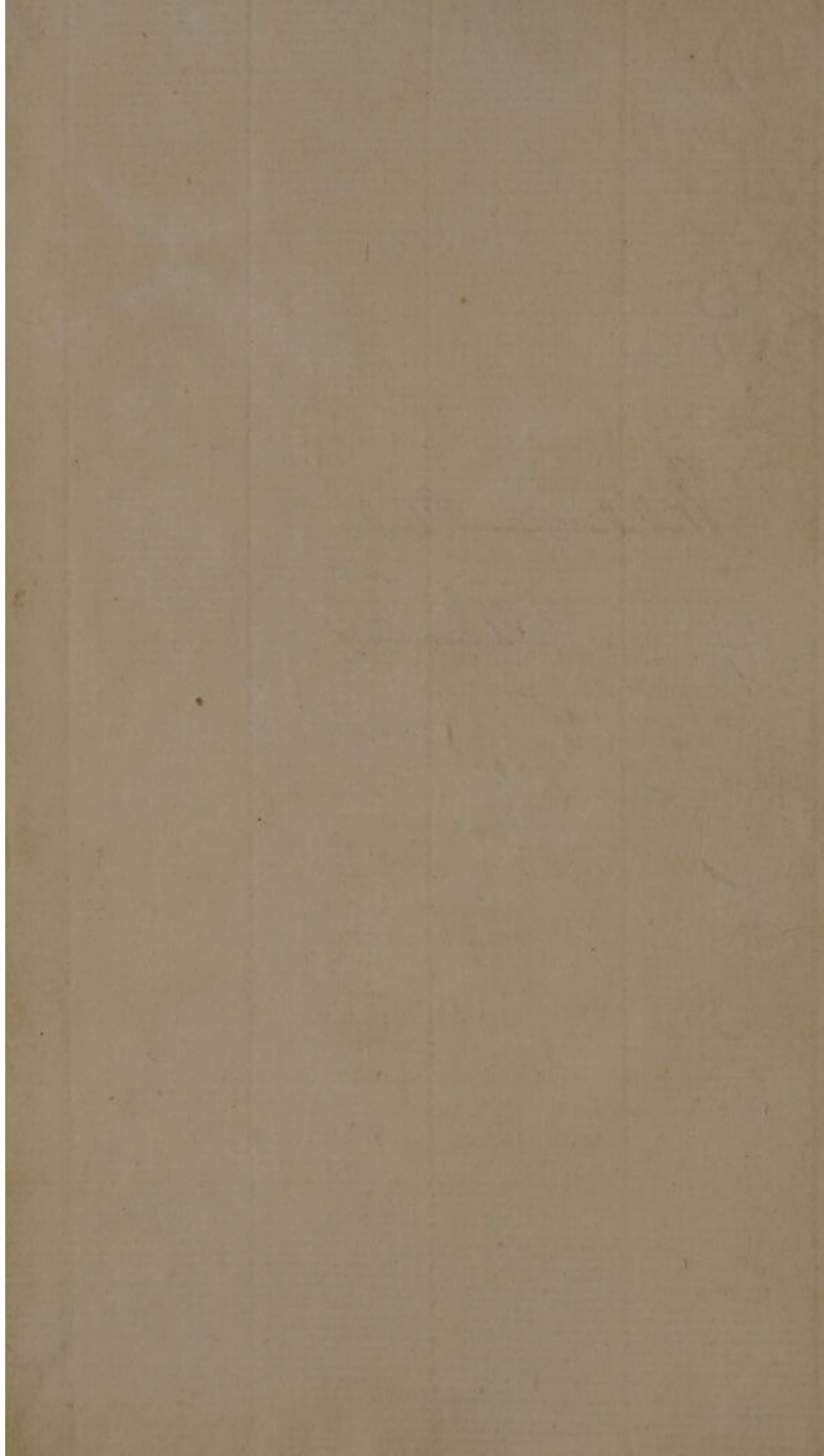
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A
SECOND TREATISE
ON THE
BATH WATERS,

COMPREHENDING THEIR
MEDICINAL POWERS IN GENERAL,
AND PARTICULARLY AS THEY RELATE TO THE CURE OF

DYSPEPSIA,	CHLOROSIS,
GOUT,	CUTANEOUS ERUP-
RHEUMATISM,	TIONS,
JAUNDICE AND	PALSY,
LIVER COMPLAINTS,	&c. &c.

BY
GEORGE SMITH GIBBES M.D. F.R.S.

*Late Fellow of Magdalene College, Oxford;
Fellow of the Royal Medical Society, Edinburgh, &c.*

BATH,

PRINTED BY W. MEYLER, GROVE;
AND SOLD BY ALL THE BOOKSELLERS IN BATH;
AND BY ROBINSONS, LONDON.

1803.

SECOND EDITION

BATH WATER

CONTAINING

MEDICAL POWERS IN GENERAL

IN PARTICULAR AS THEY RELATE TO THE CURE OF

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GEORGE SMITH GIBBS M.D. F.R.S.

Lecturer of Medicine at the University of London

Physician to the Royal Naval Hospital, Portsmouth

1854

PRINTED BY W. GRIFFITHS, LONDON

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It is only by an accurate and attentive investigation, that a practitioner can be fully acquainted with the qualities and powers of any particular medicine; such an examination I have endeavoured to give of the Bath waters. I have therefore in the following treatise presumed to controvert the opinions of some Physicians, who residing at a distance from Bath, are not, I conceive, fully aware of their medicinal excellence. My situation here as Physician, which gives me continued opportunities of observation on this subject, will enable me to resume it at some future time, and to treat it more at large. I wish it to be understood that I do not in the following pages enter upon the consideration of the diseases enumerated in my title page, any further than as the Bath waters are applicable to their cure.

Bath, Jan. 1, 1803.

A

PRACTICAL TREATISE
ON THE
BATH WATERS.

IN my former treatise I have attempted to shew the nature of the substances, which by means of chemical analysis I have been able to separate from the Bath Waters. I now proceed to the examination of their medicinal powers; and to a description of the practical advantages which experience teaches us are to be expected, and which a knowledge of their contents gives us a rational hope of deriving from the use of them.

In the preface to Dr. Falconer's work on the Bath Waters, he observes, " that chemistry informs us, that the Bath Waters contain a small portion of common salt, a larger portion of selenites, perhaps some unneutralized

earth, a portion of fixible and some sulphurous gas or inflammable air, together with a slight chalybeate impregnation; all which substances, either combined or separately taken, we have no reason to believe, possess in the quantity they can here be administered, medicinal powers at all adequate to the effects we so frequently see produced by the Bath Waters; and are moreover contained in several mineral waters of slight efficacy, or activity in much larger quantity than in those of this place."

Reasoning a priori from the impregnation discoverable in the Bath Waters by chemical agents, we certainly should not be led to suspect that they would have any great effect on the human frame. Experience however teaches us, that these waters possess very active powers when introduced into the body; and we are, I apprehend, authorized in attributing their effects to those substances in them, with which chemistry has made us acquainted. Because other chalybeate waters contain larger quantities of the metal, it is not to be supposed but that a different

mode of impregnation may augment, or vary the effects these produce on the animal economy. Who could suppose that a little addition of one of the principles which compose our atmosphere, could change calomel into corrosive sublimate, or that the imperceptible operation going on in the glands of vegetables, should produce from water, air and earth the deadliest poisons; poisons which when once admitted into the animal system cause instantaneous death? It is not, I contend, from the fewness of the principles or from their quantity, that we can declare these waters to possess no activity, or, possessing it, to determine that it does not arise from the substances as yet discovered in them.

It is to be observed that the natural substances which produce on the human body the most violent effects, are resolvable by chemical means only into a few simple and apparently inert principles; witness the medicines and poisons which are derived from the vegetable and animal kingdoms; the poison of the adder, and the poisons from vegetables afford striking instances; nay, the

constitution of the atmosphere where the most malignant fevers prevail, shews when examined chemically but little variation. In short, the slightest perceptible variation in the affinities of innocuous principles produces in the chemistry of nature her most active agents.

But the principles which are discovered in the Bath Waters are not, even when chemically considered, of the inert nature generally supposed. The chalybeate impregnation is of so delicate a kind, and so different from that of all other waters, as nearly to have eluded the nicest chemical research. The almost volatile state of the iron must give it an activity upon the human system, fully equal to what we see produced by these waters. Besides that our taste and smell discover in these waters when fresh from the spring, a very perceptible chalybeate impregnation, chemical agents constantly detect in that state a larger proportion of iron in them. It is also found that the more delicate the reagent is, the greater is the quantity of iron discoverable. In my former

treatise, I mentioned the reasons which induced me to believe that the iron was nearly in a metalline state. In that state, so extremely divided, and applied dissolved in water at such a temperature, there does not arise a doubt that most of the medicinal effects of these waters may be with confidence attributed to that cause.

It will not be necessary to adduce many instances to prove the increase of activity, which results from the mere division of substances received into our bodies. It is well known that the surfaces of bodies increase according as they are divided, and that thereby more and more parts must be brought into contact with the internal surface of the stomach; in short, substances thus comminuted, become more and more diffusible.

Although analogy hold but little between animate and inanimate natures, yet in this instance we may be permitted to reason a little by it. A piece of solid marble, placed in diluted sulphuric acid, dissolves not by

any means so readily as if the marble had been reduced to powder: the reason is evident, the surfaces exposed to the acid are much greater in the latter, than in the former case. The comminution of substances is a common preparatory step taken in many chemical processes. The digestion of food in the stomach is generally considered to be a chemical process. A juice is there secreted, which acts as a solvent upon the different substances which are introduced; but preparatory to such a process, the office of the teeth in masticating the substances to be introduced, shews that the division of the food is necessary for the process of digestion. In the exhibition of medicine therefore, one object should be to prepare them in such a manner by division, as that they may have their full effect upon the stomach. It is known the greater the comminution of jalap, the less quantity is requisite to produce a given effect on the bowels. It appears that the activity of medicines, particularly those of the mineral kingdom, is increased in proportion to the minuteness of their division; and I believe that the very

powerful effects experienced from the Bath Waters, arise in a great measure from the minuteness, and consequently the great diffusibility, of the iron they contain. I am told that by more delicate reagents, a larger quantity of iron has lately been detected than we have hitherto supposed these waters to contain.

I have already mentioned, that the mastication of our food is necessary to the digestion of it. It is however highly beneficial sometimes to present the food to the stomach in a still greater degree of division; thus in weak stomachs, we dissolve the flesh of animals in water, in order to recruit the languid state of the system. What applies to the digestion of our food, affords an argument for attaining by the same method the purposes of medicine. But although our animal appetites only lead us to discover such substances, as are immediately necessary to our preservation, yet others are at hand, and with but little attention discoverable, to remove most of the ailments which are likely to arise. Medicinal herbs

grow near to those which afford nutriment; and I doubt not, that most poisons have their antidote at hand. The diseases arising from diversity of climate are no less attended to, than the preservation of the human species by suitable nutriment; nay, the diseases which arise from the use, or abuse of what counteracts the effects of climate, are frequently to be obviated by natural and medicinal means discoverable on the spot. The effect of an effect seems to be provided for; indeed there is no one part of nature, where such a dispensation cannot be traced. To see therefore, spring up in the midst of a fertile valley, such a stupendous provision as the mineral waters of Bath, must lead us to an investigation of the most interesting nature, when we consider that they must have been sent to answer some adequate purpose.

I am aware that the foregoing reasonings may not be thought sufficiently philosophical; I shall therefore proceed to shew, that the mineral waters of Bath, although their value and properties may not yet be suffi-

ently appreciated, are known to possess powers of the most beneficial kind, in removing some of the most dreadful disorders incident to the animal economy.

If the Bath Waters possess any medicinal powers, if they produce effects on the human constitution, different from ordinary water at the same temperature; I contend that then they must be considered in the same way, as any other article of the *materia medica*. Because in every subject under consideration, there are powers which we have not unfolded, and perhaps shall never be able to unfold, we must not on every occasion, be contented to refer physical effects to mysterious causes immediately in action. We have a great way to go, before we arrive at the *ne plus ultra* of physical operations, and we must guard against betraying our ignorance and indolence, in investigations of this kind. I mention these things, because former writers on the Bath Waters, have referred much to specific effects, and to the operation of mysterious causes.

The Bath Waters are very well adapted to alleviate the diseases incident to a rich and luxurious nation. Amongst the numbers who come for relief, we find a large portion who have incurred the penalties attendant on indolence, luxurious living and excess. But whilst I notice the sufferings resulting from indiscretion, I by no means exclude that melancholy list of disorders which attach to human nature, and which are derived from the natural constitution of the human body, or from the inevitable exposure of it to the vicissitudes of weather, or the change of climate. Neither must I pass over hereditary complaints.

In order to form a proper estimate of the Bath Waters, we must see what effect they have on the human constitution in a state of health. By knowing what power a medicine possesses when applied to a healthy subject, we can hope to reason correctly on its action in disease. Dr. Saunders says, "that we should always keep in mind, that the Bath waters, whether from the warmth or from other causes, though capable of increasing a

febrile state of body, where such already exists, will seldom, if ever, produce it in a healthy subject." Although these waters may not produce a permanent febrile affection in a healthy subject, yet I know from personal experience, that they cause very painful and distressing symptoms. They produce much head-ache and heat over the system, and they give to the blood a peculiar determination to the head. As every one has a peculiarity of constitution, it is not from a trial with one person, that these powers are to be learnt. The sanguineous, and the melancholic are not similarly affected by the same agent. But although one constitution may be affected in a much higher degree than another, yet we generally find that we can trace a similarity of effect, and that the powers of the same medicine vary chiefly in degree. The discrimination of these varieties, and the proportioning the means to be employed to each particular case, is the province of the Physician.

The Bath Waters then, when drunk by a person in health, produce evident marks of

activity. In the sanguineous person, the circulation of the blood is quickened, the face flushes, a sense of heat is perceived over the body, a violent head ache is produced, and even in some cases apoplexy may be brought on. Some tendency to these effects may be observed in every one of a full habit of body, who incautiously drinks the Bath Waters. The sudden application of such a powerful agent as this is, without preparation, will produce similar effects even in constitutions which are much debilitated. It is a very common complaint, that these waters produce a giddiness in the head. I have observed, that this giddiness comes on about ten minutes after the water has been drunk.

A violent head ache with throbbing, giddiness, dryness of the tongue, and heat over the system, are to be apprehended by those who incautiously drink the Bath Waters. In people of a lax fibre, and whose bowels are habitually somewhat relaxed, the effect of these waters is different; they appear to warm and strengthen the stomach, and usu-

ally produce a good appetite for food, with a great flow of spirits. The symptoms above enumerated, and which these waters produce more or less upon all constitutions, although they do not affect all to the same degree, evidently shew that the Bath Waters possess as well marked and decided properties, as any article in the *materia medica*.

The reports of cases that have been admitted and discharged from the General Hospital at Bath, do not produce a conviction of the efficacy of these waters in any very decided manner. As in other hospitals, medicines have here been applied towards the relief of diseases equally with the Bath Waters. One could wish to examine the returns of those cured in other hospitals, where they have not the advantage of the Bath Waters. I do not doubt, that the numbers discharged cured from the Bath hospital, would far exceed the proportion from others; but still, as many patients are cured of the same complaints in other hospitals, such a proportion should be ascertained. Besides as the Hospital at Bath is

restricted to particular diseases, the numbers cured of such disorders appear in a much greater proportion than where acute, as well as chronical cases are admitted. Dr. Falconer mentions in his work on Rheumatism, that eight pounds and a half of the pulvis antimonialis had in the course of eight years been administered in the Bath Hospital.

The eagerness in recommending a medicine is often the surest means of destroying confidence in it; and the great number of different ends the Bath Waters are said to accomplish, makes them suspected. It is with reason that we suspect descriptions of advantage, when contraindications are to be fulfilled; and the Bath Waters have certainly been extolled for too many virtues, although a patient investigation of their real powers would have enhanced their value much more than such indiscriminate praise.

The Bath Waters sometimes excite a feverish heat when drunk in but small quantities; to some people's stomachs, they are

very grateful and refreshing. They even take off the desire for vinous spirits, which is so urgent in those, who have been habituated to their use. There is a difference in the water of the King's Bath pump, the Cross Bath, and the Hot Bath. The temperature of the King's Bath Water, as drunk at the pump, is 114 degrees of Fahrenheit's thermometer; that of the Hot Bath, in Hetling Court, is 116 degrees; and that of the water at the pump of the Cross Bath, is 107°. The Cross Bath water is generally considered to be the least stimulating and heating of the three. The quantity of iron is less in the water of the Cross Bath, and its temperature is considerably lower. The Hot Bath water appears less stimulating than that of the King's Bath. I have known several patients, who have been obliged to return to the use of the Cross Bath water, after trying the water of the King's Bath, in consequence of the feverish heat excited by the latter; and this, even though the smallest glass of the King's Bath water, had been substituted for the largest at the Cross Bath. When either of these waters excite

a feverish heat, it is not unusual for them to induce costiveness; this is the case with the water of the three pumps. The opinion of Dr. Falconer, that the increase of the urinary discharge is a criterion that the Bath Waters agree, is in almost every case warranted by experience, although with deference to him, I beg leave to state, that it is not an infallible guide. The quantity of additional fluid taken into the body, must occasion an increase in the urinary discharge; this cannot be looked upon as a diuretic effect. Patients are therefore often deceived as to the waters agreeing by this circumstance, of which I have lately met with a most decided instance. I believe a better proof of their agreeing, is their occasioning a flow of saliva and allaying thirst; at least it shews they agree when they do not occasion a dryness in the mouth and thirst. I have known where the urine has flowed copiously, in consequence of drinking the Bath Waters, but, as costiveness was produced, much feverish heat was brought on. An increase of urine, and the body at the same time gently relaxed, are states of

the constitution where we may expect the greatest advantage from the Bath Waters.

It is therefore usual and highly beneficial to excite these discharges during the exhibition of the Bath Waters, and I have repeatedly found that some of the mild neutral salts, as those obtained by evaporation from the waters of Cheltenham, fulfil both these indications. A couple of drachms of Cheltenham salt taken every morning before the water have effectually answered this purpose. The kali acetatum or diuretic salt joined with the bitter infusion has in many cases produced the same effect. In some instances however these waters prove somewhat purgative; the continuance of this effect should be checked; for which purpose absorbent earths are found to agree, and particularly when joined with aromatics as in the aromatic confection of the London pharmacopoeia. I have known the urinary discharge not increased, but a greater secretion of mucus from the glands of the intestines; in such instances a few drops of the sweet spirit of nitre taken in the water seem

to answer very well. Although a greater quantity of liquid is taken by those who drink the waters than is customary to them, yet the quantity of urinary discharge which attends their use when they agree proves them to possess a diuretic quality. As the irritating effect of small quantities of urine is relieved by dilution of the salts usually contained in it, so, when the Bath waters pass off that way, and as they do not possess any quality to irritate the kidneys or bladder, the urinary organs are not stimulated sensibly by them. There are no medicines so little under the controul of practitioners as diuretics. We are often deceived by them. This quality of the waters is therefore highly advantageous. Some preparations of iron appear to act as diuretics; this is one, and perhaps the mildest, effect produced by iron on the system. The exact quantity of it therefore, with ample dilution with water, seems to be supplied by the Bath waters. But as the King's and Hot Baths stimulate more than the Cross Bath Water, the latter is said, and indeed appears, to have a greater diuretic effect than the two former. A dry-

ness of the skin usually accompanies the feverish heat which is brought on by these waters when they disagree; but when they pass off properly, a coolness of the skin or a gentle perspiration seems to arise. But as the warmth of the Bath waters is sufficient to produce this effect, they have not I apprehend any decided diaphoretic quality. As these general effects will be further elucidated when the symptoms of the diseases, to the relief of which these waters are applied, are treated of, I shall proceed to examine the nature of the diseases in which we expect to derive from them the greatest advantage.

I cannot conceive the reason why so many eminent physicians have doubted the efficacy of the Bath waters. The indiscriminate use of them in every stage of a complaint must be productive of much evil. New indications are arising constantly in the progress of every disease, and it may happen that the continuance of the same medicine during these stages may counteract the benefits which were at first derived from it. Considering the Bath waters as an article of the materia

medica, and that a very powerful one, we have a right to expect, and we do undeniably experience advantages from them, when they are judiciously administered. A difference of doses is found to be necessary in different constitutions and different complaints, and the intentions to be fulfilled by them vary in the same manner as with other medicines. Different effects are produced by different quantities, and a diversity of action is observed from them in different constitutions. Various ends therefore are answered by this medicine, in a similar manner as we find by others, as steel, antimony, mercury or even the medicines of the vegetable kingdom. It is not agreeable to the science of medicine to say that a medicine cures a complaint, but there may be and there are stages in every disease where the exhibition of a particular medicine in a certain quantity invariably produces good effect. It is so with the Bath waters. They relieve certain states of dyspepsia, gout, palsy, &c.; perhaps in so doing the disease may vanish, but it would be absurd to suppose that they as a specific cured these dis-

eases in whatever stage or state they were in. As conscientious and philosophical practitioners we should not be justified in expecting from any agent such a general effect, or in indiscriminately prescribing such an administration of it. Even with our best endeavours we often fail, but this would involve us in endless perplexity. Patients frequently come to Bath under such an impression that the Bath waters relieve or cure these disorders, that they immediately begin a course of them, and are consequently very frequently disappointed. This will account in some measure, I am convinced, for the unfair construction to which these waters have often been subjected. It is well known that in every disease there are various states, each requiring a various and appropriate treatment; this is particularly observable in those diseases wherein the Bath waters have been found efficacious.

No disorder to which man is subject appears to have so many forerunners, if I may be allowed the expression, as the gout. A long list of mental as well as bodily suffer-

ings might be adduced, each deserving the character of a fully formed disease. How often do we hear of patients having the gout flying about them. When the gout has once fixed itself, these precursors usually go off, and therefore this disorder has become a subject of congratulation. Comparatively speaking, the worst apparent consequences may be a source of comfort if life is preserved by them. There is no bodily pain which would not be preferred to the anxiety and dreadful restlessness of mind which frequently precede the gout. This malady as an alternative may be welcome, but it is nevertheless one of the severest diseases which afflict humanity.

In consequence of a highly nutritive diet, much stimulating food, and the constant use of vinous spirit with a sedentary life, a long train of bad symptoms arises. The powers of the stomach are weakened and impaired, and much pampering is required to induce the exertion of its powers in the digestion of the food. High seasoned foods are had recourse to, and ease and comfort are re-

stored by a quantity of wine or spirit. Thus is fuel continually adding, and the seeds of the disease are nourished and supported. Perhaps it is from purchasing ease at any rate that this dreadful disease is suffered to attain its full maturity, and perhaps it is only in this early stage that its progress can be arrested and its consequences effectually rooted out. We see that by continuing a healthy action by means of medicine, that that action will in time be established; now the continual production of surfeits, and the debilitated state induced repeatedly by strong liquors, establish in the constitution a continued and similar state of debility, a state of constant crapula. But the stomach is not the only part that suffers; a variety of symptoms arises from it, and the whole constitution is affected. The indigestion, anxiety, flatulence, acid eructations, are generally relieved by food and wine, but their return is constant as soon as these stimulating effects cease. The body is in a state of languor, and the mind is agitated and inconstant. A great depression of spirits comes on, and life itself is fre-

quently burthensome. The bottle however gives temporary relief, and the ease of the evening is I believe generally acknowledged to infringe upon the comforts of the morning: the balance in short of the constitution is destroyed. With some or all of these symptoms it cannot be wondered at that patients should most willingly suffer the pain of a severe inflammation on the foot, rather than continue in so tormenting a state of mind as well as body. It ought to be mentioned that this habitual derangement of the constitution is attended with an impaired action of most of the secreting organs. The kidneys do not perform their office; the urine is high coloured and in small quantities, excepting during the action of wine or spirits. The bile does not flow regularly, consequently at times the body is costive or much elaxed. Violent retchings come on where nothing but clear water is discharged, owing to the diseased action of the mucous glands of the stomach, or the gastric juice being improperly secreted. There is frequently a very great discharge of water from the mouth, although at times the mouth is

hot and dry. The retchings come on generally in a morning. There is also great palpitation of the heart, and much anxiety about the præcordia. The patient is observed to fetch many deep sighs to relieve his anxiety. The tongue is constantly white and furred in the morning, and the pulse is quick and irregular. There are but few people who live well and use but little exercise who do not labour under some of these symptoms.

Dyspepsia however, the symptoms of which I now enumerate, does not always lead to the gout. Various affections of the stomach are induced by various causes, but in a general view they agree whether produced by highly stimulating food, by spirits, wine or by any other debilitating excess; but these affections of the stomach lead to very different terminations according to the causes which produced them. Thus the dram-drinker is afflicted with dyspepsia, but it leads to diseases of the liver and to dropsy. But because dyspepsia is common to other complaints, it not the less to be considered

as a constant precursor of gout. The gout does not always appear to proceed from intemperance or to be derived from gouty ancestors, although it is a melancholy consideration that it is hereditary.

But although a fit of the gout usually carries off the symptoms of dyspepsia above enumerated, yet a repetition of regular attacks will break down the constitution in such a manner, as that all the symptoms of all stages of it seem to be combined in the patient at the same time. Dr. Heberden gives a melancholy picture of the effects of gout. Chalk stones and sores are produced, and the joints become stiff and almost useless. The cramp may be reckoned one of the certain attendants upon the gout. Flatulencies, heartburn, indigestion, loss of appetite, sickness, vomiting, acidities, with pains of the stomach and bowels, giddiness, confusion and noises of the head, numbness of the limbs, epilepsies, palsies, apoplexies, inquietude, universal aches, wasting of the flesh and strength and lowness of spirits are symptoms, some of which often attend the fit and

some follow it; and most of them are the lot of old gouty patients who have moreover the prospect of entailing all these upon their posterity.

It is not likely that a disorder which has required a life time in its formation should be cured by medical means when at its height; we might as well attempt to remove age itself. But although we cannot cure, we can palliate the most distressing symptoms, and in the early stages many things can be done to arrest if not prevent its progress. As it is not my intention to treat of the several modes of relief or cure that have been recommended in this disorder, but to confine myself to the Bath waters, I proceed to shew what good effects may be expected from them in this disorder.

It is in the disorders of the stomach which precede gout that the Bath waters are found peculiarly serviceable. Dr. Heberden remarks "that Bath water seems specifically efficacious in curing the complaints occasioned by hard drinking, if applied to in time

before the stomach and liver are too much hurt." Nor is Bath the only remedy against the mischief which has been already done; but it is also singularly useful in preventing a relapse, by enabling the patients to correct the habit of drinking: for the nature of this water is so friendly in warming and comforting the stomach, as to relieve all that coldness and anxiety, which almost irresistibly force a hard drinker to fly to strong liquors for ease under these insufferable sensations. Many of these affections are termed bilious, and it is certain there is some reason why they should be thus called, but they should be accurately distinguished from those affections of the liver which are common in hot climates, and which are also relieved by the Bath waters, at least in some of their stages. The stomach being constantly affected by strong liquors and stimulating food must communicate its derangement to all the chylo-poietic viscera and the liver, and the whole intestinal canal must suffer. Thus without any absolute organic disease existing in the liver itself do many symptoms of a bilious nature arise. This is

a very common state of disease in which people come to Bath to use the waters. There are many who do not conceive they are intemperate, although they indulge freely in their stated quantity of wine daily, if it does not produce intoxication ; yet this constant full living produces the disorder in question. The glowing redness of the face which accompanies the other symptoms of this complaint is generally supposed to indicate high health. People who labour under this disorder are not however mistaken in that manner. They find their hands tremble, a certain sinking in the stomach, much flatulence and a great wearisomeness. They know that they are relieved by wine and long for the accustomed hour for taking it. It is not only from food which stimulates that ease is procured in these states ; much relief is obtained by substances which distend the stomach. The early symptoms of this disease do not incapacitate a man from the exercise of his functions, yet there is some irregularity in them. An indecisiveness of mind is perceived and a disinclination to do any thing ; the mind seems to lose its pur-

pose. A disrelish for favourite pursuits shews that the mind as well as body is affected. That shyness of character and want of self possession, until the action of wine restores confidence and assurance, is one strong character of this disorder. The state of languor which comes on is even looked upon as fashionable. It is indeed easy to perceive disease in the lounge of men of fashion. However trifling these symptoms may appear, they invariably proceed in their progress, 'till some of the worse diseases come on that can afflict the human frame.

A depression of spirits attends this complaint, and the patient is continually suspecting that he is under the influence of some of the worst disorders. He becomes hypochondriacal. This most distressing complaint is very much relieved, if not generally cured, by the Bath waters. The preparation for these waters generally consists in clearing the intestinal canal, but each disorder requires a different mode of preparation. Indeed such a preparation is not the only thing required; it is not sufficient merely to

open the body. The several beneficial effects which we expect to derive from these waters are to be promoted by medicine. In the present disorder I have frequently found that Rhubarb joined with some purgative neutral salts, as soda phosphorata, Epsom salt, soluble tartar, &c. and a small quantity of aromatic powder to be the best preparatory medicine. About fifteen grains of Rhubarb, half an ounce of neutral salt and about five grains of the pulvis aromaticus of the London pharmacopoeia I have found to answer very well the intended purpose. The doses however and even the medicine must be subject to change according to the constitution of the patient and the state in which this disease appears. The intestinal canal being thoroughly evacuated by these means, a course of the Bath waters may be commenced, beginning with the quantity of one of the small glasses at the King's Bath pump three times in a day. Where there is the slightest reason from the habit of the patient for apprehending a feverish heat on the use of these Waters, I generally recommend a hasty course of the Cross Bath

water as preparatory to that of the King's Bath. When the patient can bear three large glasses of the Cross Bath water in the day, it is probable that three of the small glasses of the King's Bath water will agree, but I have found it otherwise in some instances, where patients have been obliged to return to the use of the Cross Bath water. I usually recommend dyspeptic patients during the use of the waters about a couple of drachms of some neutral salt, and I generally prefer those procured from the waters of Cheltenham by evaporation, to be taken every morning in some convenient vehicle, as chamomile tea. This keeps the body cool, prevents costiveness, and assists the waters in their action on the kidneys. This plan joined with temperance and moderate exercise seldom fails producing complete relief from all the distressing symptoms of dyspepsia. The iron, combined as it is here with so much warm water, does undoubtedly produce the happiest effects in this disorder. The medicinal preparation of iron, with a strict attention to the above plan do not, as far as I have been able to judge, pro-

duce the same effects. By the plan above laid down, the patient's bowels are kept soluble, his urine flows in a large quantity, and is of a proper colour, his appetite returns and his sleep becomes sound and refreshing, he continually finds that he acquires strength, and that his spirits flow in a regular and agreeable manner.

But in relieving these symptoms of dyspepsia, the Bath waters very frequently bring on a fit of the gout, in the high inflammatory state of which the Bath waters are by no means proper. Dr. Saunders observes that in gout the greatest benefit is derived from Bath waters in those cases where it produces anomalous affections of the head, stomach and bowels, and it is here a principal advantage to be able to bring by warmth that active local inflammation in any limb which relieves all the other troublesome and dangerous symptoms. Hence it is that the Bath waters are commonly said to produce gout; by which is only meant, that where persons have a gouty affection shifting from place to place, and thereby

much disordering the system, the internal and external use of the Bath water will soon bring on a general increase of action, indicated by a flushing in the face, fulness in the circulating vessels, and relief of the dyspeptic symptoms; and the whole disorder will terminate in a regular fit of the gout in the extremities, which is the crisis always to be wished for.

As I mean to confine myself solely to an account of the Bath waters, I pass over other plans of cure in this disorder. The debilitated state in which patients are left after a severe fit of the gout, is relieved by the tonic powers of the Bath waters, when the water of the hot Bath is usually recurred to. The expressions of comfort, in consequence of using this water, are a proof of their agreeing wonderfully well with those who are weakened with gout. When the gout is, as it is expressed, flying about a patient's constitution, the warm Bath is highly dangerous. I have heard of very dismal consequences resulting from an imprudent use of the Bath in such a state.

It cannot be supposed that the proportion of iron to warm water, in these waters, should always suit exactly all the cases in which they are applied; and therefore in some cases I have found great benefit, by giving a pill made with steel in its composition before every glass of the water. The quantity of iron is thus increased, and the patient acquires more strength. The full dose, however, of the King's Bath water is generally found sufficient; but as the quantity of water is found to oppress some stomachs, a pill of steel given with one of the smaller glasses will frequently be found highly advantageous. When the bowels are too much relaxed, and it is necessary to assist the waters in promoting the urinary discharge, which is always a necessary circumstance, a few drops of the sweet spirit of nitre, or, which may be sometimes better, of the compound vitriolic ether, as for instance thirty or forty drops, may be added to each glass of the water. I by no means approve of the dissolving any neutral salt in these waters, as by it the briskness of the water is very much diminished, not only by the time necessary for such a solution,

but by the new chemical arrangements which take place among the ingredients of the waters themselves.

If instead of occasioning thirst these waters allay it, if they do not load the stomach but cause a sensation of lightness, if they exhilarate, promote the discharge of urine, and do not occasion head-ache or heat over the system, these waters may be confidentially expected to agree and be of service. But if they load the stomach and cause a giddiness with head ache, or make the tongue dry, then they should be left off, or some of the means before mentioned employed to make them agree.

We know that gouty patients are very subject to gravel, and that this disorder disturbs the stomach to a very great degree. Indeed I have known spasms brought on, which have been mistaken for gout in the stomach, and a long list of hot medicines applied under that idea, and of course without success. Even here the Bath waters may be necessary, although it cannot well be ima-

gined that they can remove the complaint, except by increasing the urinary discharge. A pill composed of the natron preparatum and soap, with some aromatic taken before each glass of water has an admirable effect. I know of nothing that disorders the stomach more than gravel, and no disorder which is oftner mistaken. Gout cordials, as they are called, are applied without relief, except such as results from a species of intoxication. I have known the mildest diluents with alkalies, and in short those things reputed cold for the stomach, cure very effectually what bitters, strong tinctures, which are all drams, ether and in short a long list of hot medicines have failed in even relieving. Such disease of the stomach has often proved to be in consequence of gravel.

But if the stomach is really affected with gout, stimulant medicines become necessary; but I apprehend not at all to the extent in which they are frequently employed. By giving a small quantity of several stimulants an effect is produced, which one only, unless in a large quantity, could not be found to

answer. A little ether, brandy, wine, &c. taken alternately, will with a quarter of the quantity, produce as much effect as if either was separately taken. But to return to the Bath waters; in the unsettled state of gout they are found most highly efficacious in bringing on a regular fit. I apprehend they give strength or tone to the stomach, which makes it capable of resisting the disease, and by increasing the strength of the general constitution, they prevent its attacking the more vital parts. Allowing that some part of the body must be affected with gout, when the stomach is supported and strengthened, it is not surprizing that the disease should shew itself in the extremities. I do not wish to enter into any theory on the subject; the fact I apprehend is established, and the practical advantages to be derived from medicine in the gout are ascertained.

When the gout has been established for years in the constitution, and when the human frame has become habituated to a regular recurrence of its attacks, I am fearful that the art of medicine will never be able to

eradicate it entirely. Many symptoms may be palliated, and many perhaps prevented, but the disposition to the disease cannot be entirely removed. But it is a great consolation to consider that ease and comfort may be sometimes produced. The Bath waters judiciously employed, do assuredly fulfill many indications, even in the worst stages of this complaint; but in this as in all other diseases to which the human frame is subject, the combined effects of disease and age must bring on its termination in death.

Connected with dyspepsia, which is one of its symptoms, we have to notice a very distressing complaint, known under the name of Hypochondriasis. An unusual depression of spirits, with the most terrifying apprehensions upon subjects of the most trifling importance, marks the affection of mind which accompanies this disorder. There is the greatest obstinacy in the belief and persuasion in such ill-founded feelings. When there is a great derangement in the stomach, and alimentary canal

in this disease, the Bath waters are of service as in the case of dyspepsia. Warm bathing is however of great advantage, as it gives a degree of activity in the circulating system, which in this disease is apt to be extremely inert. There is not a more distressing complaint than this is in its fully formed state. I have known this disorder terminated by a large eruption on the skin. There is indeed frequently an alternation of very distressing affections of the stomach, and of the mind, with some very long standing diseases of the skin. As such affections are relieved naturally by cutaneous eruptions, the warm Bath by exciting a determination to the surface of the body, is found of singular benefit in this complaint. In this as in many other disorders there are several stages, wherein the patient suffers, without the disease being absolutely formed. Even an approximation to disease requires a medical treatment. The Bath waters by strengthening the stomach, and thereby removing the dyspeptic symptoms, are found singularly efficacious in removing this troublesome malady.

Another disorder in which the exhibition of the Bath waters in their several forms is attended with advantage, is the rheumatism. Dr. Charlton observes, "that relief is chiefly found here by those who labour under that species of it, which is unattended with inflammation, or in which the patients pains are not increased by the warmth of his bed." The acute rheumatism and gout, are very similar in many of their symptoms; they are produced however by very different circumstances, and are not preceded by the same morbid affections of the system. Although the acute rheumatism is a very painful and distressing complaint, there is not usually the same dread of its shifting its situation to more vital parts as is the case in gout. The shifting however of this disease from one joint to another is a characteristic symptom of rheumatism.

The acute rheumatism is accompanied with febrile symptoms, which frequently run very high. It is observed, however, that the fever attending rheumatism does less injury to the constitution than fevers

usually do. A great restlessness, excruciating pains in the joints shifting continually, increase of pain when warm in bed, and an universal feverish disposition mark the acute rheumatism. The great sweats which break out in this complaint do not relieve the rheumatic pains. In this stage of rheumatism, the internal use of the Bath waters is not by any means indicated; it is also said, that the heat of the water is too great to admit of the external use. After the more urgent febrile symptoms have disappeared, strengthening medicines, such as bark, have been recommended, and their exhibition has been attended with success. I have seen great advantage from the use of bark in this disorder in arresting the progress of the disease. There is a stage in this disorder which cannot be referred to either the acute or chronical. The pains wander and the joints swell and are inflamed, yet the tongue is not so white and furred as when the fever runs high. In this state I apprehend the bark is serviceable, and the Bath waters may be recurred to. I have known the Bath waters of advantage even where there ex-

isted much quickness in the pulse, and much irritability in the system, when the tongue has not indicated much febrile affection.

It is however very necessary to use the utmost caution in recommending such a course at such a time, but in several instances I have found great advantage from it. It very frequently happens in this as well as many other febrile affections, that some acute symptoms remain, even when a course of tonic medicines have been found serviceable; ascertaining this point accurately requires much judgement, and it appears to me to be a very essential circumstance. I believe this state comes on sooner in acute rheumatism, than in many other disorders attended with febrile symptoms. There are often induced upon unquestionable states of debility many highly acute symptoms, where a rigid adherence to the antiphlogistic plan of cure would certainly be attended with much disadvantage: now as the bark does relieve this complaint, at least as it certainly does not aggravate the symptoms of rheumatism which shew some inflammatory ten-

dency, we have good reason for supposing that the inflammatory symptoms are only transient, and that this disease in most of its stages is a disease of debility. I have had the most unquestionable proof, that the least relaxation would aggravate all the pains of a rheumatism apparently acute; and I have seen that an attention to diet, strengthening medicines, and in short to whatever gave strength and support to the constitution have uniformly produced some relief from pain.

With respect to the very stimulant and nauseous remedies which have been recommended in this disorder, I conceive that in as far as they injure the powers of the stomach and pall the appetite they do mischief. Excesses of a debilitating nature predispose the body for this complaint. Poor living attended with exposure to the changes of the weather, to alternate heats and cold, and to damp, produce this disorder very commonly among the lower ranks of society. I have been led into this disquisition, in consequence of the apparent contradictory indications in this disease, but my limits will not

permit me to pursue the subject so far as my observations would induce me.

If the pains of rheumatism remain after the febrile symptoms have vanished, the disorder is said to be chronic. In the chronic rheumatism, great care is required in ascertaining the origin of the complaint, for a great number of similar pains are brought on by other causes. Dr. Heberden remarks "that sweating has only sometimes seemed to be of advantage, and that it is notorious that these patients are of themselves subject to excessive sweats without any mitigation of the disorder." He says, "that he had remarked some instances, in which warm bathing seemed prejudicial, but not one, in which it did any good in either species of the distemper." Where warm bathing relaxes, it certainly appears to do mischief in this disorder. I believe every practitioner in this city must have observed great benefit to accrue from the use of the hot Bath in chronic rheumatism; indeed I have known a great number of cases wherein complete relief has been obtained. The internal use of

the Bath waters regulated as to quantity according to the circumstances of the case, and the bathing at a temperature about 90° seem to produce very beneficial effects in some cases of chronical rheumatism where all other plans have failed.

There is a mode of applying the Bath waters by means of a pump to any part of the body, and this operation is here called dry pumping. Great advantage has been derived from this local application of the waters in those swellings of the joints, which succeed the attacks of rheumatism. Indeed this mode of applying the Bath waters is found of great advantage where a local effect is wanted, and where danger might be supposed to accrue from general bathing. The quantity thus applied is measured by the strokes of the pump. The water by these means falls with great force, and is of a higher temperature than the warm Bath. Violent strains and spasms occurring on sudden and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the

nature of the chronic rheumatism: such rheumatic pains in consequence of strains are much relieved by this mode.

The liver being one of the most important viscera in the body, it is not surprizing, that its derangement should give rise to many very serious complaints. It is essential in its functions to the proper disposal of the nutriment received into the stomach, and consequently the support, the strength and well being of the system must be dependant upon it. As the stomach, another essential organ, is disturbed in its functions by excesses in the manner of living, so does the liver become diseased from similar causes. The derangement in this important viscus is also counteracted and relieved by the use of the Bath waters. As the Bath waters are improper where there exists an inflammation of the liver, I shall pass over that state of it, and proceed to examine those wherein their use is admissible.

One of the most common causes of jaundice is the obstruction to the passage of the

bile into the duodenum by biliary concretions. These concretions are very often found to exist in the gall bladder, without the liver itself being in a diseased state. It is said that the dry food of winter causes in some cattle the formation of gall stones, which are dissolved in the spring by a return to fresh and esculent vegetables. The jaundice, however, sometimes arises from a schirrus in the liver. Dr. Corp says that the jaundice may in general be suspected to arise from a schirrus, and from that kind which is of an indolent or uninflamed disposition, when an hardness or resistance can be perceived upon pressing the region of the liver, when at the same time it is unattended with pain and fever, and when only a trifling degree of uneasiness is felt by the patient on lying upon the left side. But when a resistance and hardness is perceived on pressing the right hypochondrium, attended with some pain, and when that is increased by lying on the left side, and especially when it is accompanied with some fever, however trifling it may be, we presume that the liver is in an inflamed state.

As jaundice comes on not only in consequence of biliary concretions, but also from a viscid state of the bile, it may be necessary to point out the diagnostics of those states. It has been said by writers on this subject, that if the jaundice arise suddenly without fever, or after exercise or violent agitation of the body, attended with pain more or less acute in the region of the liver, especially if it come on by paroxysms or fits, and if the stomach be affected with considerable vomiting or nausea, and if the stools be perfectly white or of a clay colour, and the disease have happened more than once, we may, I presume, judge that gall stones are present. But when the obstruction which produces the disease depends simply upon a viscid state of the bile, it approaches gradually. The body first becomes more costive than usual, and the countenance in some degree more sallow: this latter circumstance, however, goes off and returns occasionally for some weeks before a settled yellowness in the face and eyes is to be observed; at which time a more obstinate costiveness takes place. The patient perceives little or

no pain in the region of the liver, but complains of a sense of fulness and considerable sickness, and his stools are always more or less yellow.

The pain which attends the passage of the gall stone through the ducts is sometimes so severe, as to be almost beyond human sufferance. It is generally perceived under the xiphoid cartilage. Relief is sometimes attained by the posture of the body, or by pressing violently against the region of the liver. I have observed patients nearly doubled forward to ease themselves of pain, and I have known when lying back over the edge of a bed would produce some relief. Patients sometimes suffer excruciating tortures from these concretions, where the skin shews only a slight tinge of yellow. The absorption of the bile must depend in a great measure on the quantity that is kept back.

There is a disorder which approaches very much in its symptoms to this above mentioned. In this there is perceived a great weight, oppression and pain in the region of

the stomach, and the bowels are very irregular. This disorder arises from any weakening excess, from great application to study, inactivity, and from the not making use of sufficient nutriment. I have known this disorder completely cured by an attention to diet, wherein was constrained a very large proportion of nutriment. The Bath waters, by strengthening the stomach and exciting a healthy action, are peculiarly serviceable in this complaint. But as I cannot in this place enlarge further on it, I must pass on in the examination of the liver.

The application of warmth, by relaxing the gall ducts, is attended with very good effects. The Bath waters are in this respect very serviceable, for as they do not leave so much permanent debility as ordinary hot water, and yet cause during their exhibition the same relaxation, they are particularly of service in attaining this mechanical effect. As excess in the use of vinous spirit produces that state of disorder in the stomach, a consequence of which is the liver complaint now under consideration; and as a

well directed course of Bath water is found eminently serviceable in this complaint of the stomach, so do we find that that state of constitution, which is necessary to the production of this disease, is removed by a course of the Bath waters. However, when the concretions are formed, and the disease is urgent, the mere prevention of future attacks is not the only thing required.

The actions of emetics and purgatives combine to remove the stone from the duct; the debility ensuing their operation and opium with warmth applied to the part, assist in relaxing the duct. Various oils, alkalies &c. have been recommended and used with success. The mineral alkali, taken before each glass of the Bath waters, I have found of great service; nay, I have had reason to believe that the disposition to form biliary calculi has been obviated by this medicine. The *natrum preparatum* joined with soap, with the use of the Bath waters, has been the most successful plan I have seen for removing this painful complaint. After a free use of purgatives, I believe the action of iron

to be particularly serviceable, if we have succeeded in removing the obstructions from the ducts. The quantity of warm water with iron seems in the waters of Bath, to resolve the obstruction and strengthen the constitutions of such patients; in whose cases the diuretic effect seems also highly efficacious.

If a schirrus of the liver be attended with any inflammation, and here the signs of inflammation are often very obscure, the Bath waters are inadmissible; but where there is great inactivity in the disease of that organ they appear to possess very resolvent and deobstruent qualities. A great many of the symptoms attending an indolent state of the liver are very materially bettered by the use of the waters. The urinary discharge is increased and the stomach is strengthened. The tonic powers of steel seem of great advantage, when joined with the purgative effect of some of the neutral salts. The diuretic salt also when taken a little before the Bath waters, for I should think, if they were joined with them, the waters must lose some of their properties, assists their diuretic and

deobstruent effect. The action of emetics in some affections of the liver, and particularly where there are biliary concretions, seems of very great service; for besides the motion they give to the neighbouring parts, thereby facilitating the passage of the stone, they occasion great relaxation throughout the system.

It seems that the application of hot water to the skin prevents vomiting, which, considering the consent between the skin and stomach, is not at all surprising. After there is some evidence of the passage of thickened bile or calculi through the duct, it is necessary to give some purgative. If the Bath waters are drunk at the commencement of the plan of cure in this disorder, great care should be taken that no perceptible distension be produced in the stomach by their use. It is of very great use to excite the urinary discharge throughout this disorder. The danger, although the suffering is much greater, is less in case of gall stones, than where there exists a schirrus in the liver itself. This viscus not being endowed with

much feeling, many dreadful diseases are permitted to creep on without any very great derangement in the ease of the patient. But as the schirri occasionally inflame, a fever is raised, and the health of the patient is then much discomposed. These inflammations go off, but the shirrus remains; the intervals of apparent recovery, however, become shorter and shorter, the appetite, strength, and flesh decrease, a cough accompanies this disease, and a dropsy comes on which generally terminates the life of the patient.

Dr. Heberden observes, "that Bath waters are in no cases more useful, than in remedying many of the injuries done to the constitution by drunkenness: but where the liver is become schirrous, and a hectic fever shews these schirri to be in an inflamed state, there the Bath waters will aggravate all the symptoms, and contribute no otherwise to end the disease, than by hastening the patient's death". From what has been said, however, it appears certain, that in some stages of these complaints, the Bath waters are of

very great service in removing some of the most urgent symptoms of these disorders. The warm bath is here always at hand, when immediate recourse to it is adviseable.

But it is not in fully formed diseases that we are to expect to derive the only advantage from the use of medicine. It is easy to perceive an approximation to disease, where there is much disturbance of the patient's health, and where the exhibition of medicine is attended with the utmost advantage. Medicinal means are not resorted to in time, and many a person has lost his life by not obviating the approaching malady. By persisting also in those habits by which a disease is commenced, the derangement takes a firm hold on the constitution. It has been said that the relief obtained from the Bath waters lasts only a given time, and that dyspeptic and other patients are repeatedly obliged to apply to them for relief. This surely cannot be attributed to any want of power in the efficacy of these waters, for such patients, by a return to their usual habits of life, and to the causes which at first produced the

disorder, must expect a return of similar symptoms.

With every one who reflects seriously on the efficacy of the Bath waters in removing the early symptoms of some of the most fatal diseases to which man is subject, their credit will in this respect stand as high as if they removed the complaints when fully formed.

It is to be observed that patients do not generally recur to the use of the Bath waters until all other means of cure have been tried; and that the trial of them is not recommended by practitioners at a distance from Bath, until the disorders have been of a long standing, and have thereby taken a firm hold on the constitution. They are very improperly considered as the last resource in the medical means to be recommended in these complaints. The derangement of the stomach occasioned by intemperance precedes the diseases of the liver; now although the Bath waters, like all other medicines, fail in curing these disorders in the last stage, their credit stands very high, since by an

early application to them, these extremes may be obviated.

Dr. Saunders, in his Treatise on Liver Complaints, says, " I consider the waters of Bath, Bristol, and Buxton, as not having any powers superior to common pump water, heated to the same temperature. The steadiness and uniformity however of their several temperatures intitle them to some preference, and render them proper to be drunk by persons whose stomachs are irritable and impatient of their contents, and perhaps weakened in their digestive powers by long habits of ingurgitation and gluttony, or from intense application to study, accompanied with a sedentary life." In the same work he observes " that chalybeate waters may be used to advantage with a view of giving tone and energy to the system, so very defective in cases of jaundice." The Bath waters, therefore, even according to Dr. Saunders's observations, must in jaundice be more beneficial than ordinary warm water, because they contain much iron in their composition. Dr. Saunders says also, " that he has fre-

quently with much success, recommended the use of warm water in dyspeptic cases; and in anomalous gout, it seems to allay the irritation of the stomach, to promote and diffuse a generous warmth in the extreme parts, and if taken at night, will generally produce sleep. Perhaps it acts upon the principle of tepid bathing; with this difference, that any action on the stomach has a more extensive influence on the system than the same action would have on the surface of the body.

“Water heated to a certain degree, when taken into the stomach will produce giddiness of the head, while the same water at a lower temperature will produce no such effect: this is the reason why patients at Bath are directed to drink the water of different springs, though not differently impregnated, and it gives rise to a refinement in practice, which has for its foundation only the different effects of temperature.” Dr. Saunders says, “if upon investigation I find that the constitution has only suffered by the prevalence or excess of bile, and that the disposi-

tion to that morbid increase of secretion still remains, disturbing the functions of the stomach and irritating the bowels, I recommend it to my patient, every morning before breakfast, to dilute the contents of the stomach, by drinking from half a pint to a pint of water, of a temperature from 90 to 114 degrees of Fahrenheit's Thermometer, likewise to take a moderate degree of exercise before breakfast. This may be done either at London or at Bath, though I am persuaded the benefit derived, is by dilution, and that tepid water dilutes better than cold water, and that pure water dilutes better than water impregnated with saline, earthy, or metallic matter."

In answer to these observations of Dr. Saunders we remark that it is known that the water of the Hot Bath, though at a higher temperature, does not produce that giddiness in the head which the King's Bath water does, consequently this giddiness is not merely the effect of heat. If ordinary warm water produce the same effect that the waters of Bath do on the head, and as that is the symptom to be apprehended, these wa-

ters by containing iron which according to Dr. Saunders produces good effect in weaknesses of the stomach and jaundice, must be preferable to ordinary warm water, and consequently also they have the same properties as ordinary water, and as the giddiness produced by them is not to be attributed to their chalybeate impregnation, their exhibition can be attended with no greater danger than water artificially heated to the same degree. We may deduce therefore from Dr. Saunders's observations in his work on diseases of the liver, many reasons for believing these waters to be highly beneficial. They in the first place produce all the good effects of ordinary heated water, which according to him are very great; they are always steady and uniform in their several temperatures; and as they contain a chalybeate impregnation, which varies in the waters of the several Baths, they are of advantage in giving tone and energy to the system.

The Bath waters are peculiarly serviceable in removing the obstructions so common in the female sex. The symptoms which

attend these obstructions are of the most distressing kind. The countenance is bloated and of a yellow colour, the respiration is oppressed and particularly difficult when the body is in motion. An universal langour oppresses the whole constitution, the legs seem unable to support the body, sometimes there is a teasing cough, the appetite is uncertain and loaths wholesome food, even things possessing no nutritive qualities are eagerly sought after and swallowed, the belly sometimes swells and the ankles are puffed, the mind is peevish, and the body is generally costive. The disease appears about the age of puberty. Dr. Heberden observes, "that the proper time of the first appearance of the menstrea is from the age of twelve years to fifteen. Some shew of them has been known in girls of eight or nine years, and even five years; but I never knew an instance of their continuing to return regularly, when they began sooner than the tenth year of life. The very early appearances have not been attended with any ill consequences, and required only a little rest and patience."

“ When the catamenia begin first to flow at the proper time, it happens to many young women, that for the first year or two they will not go on to observe their exact periods, without either exceeding or falling short of the just quantity: in this case and where they delay to come on for one or two years beyond the usual time, it is better not to be too hasty in prescribing medicines; for as the strength of the body increases, nature will most usually set all such little anomalies to right, where there is no other distemper, and in the mean time the constitution will suffer no harm.”

As the minds of young women afflicted with these obstructions are usually as delicate as their bodies are enfeebled, and as the disclosure of the circumstances attending them is distressing to their feelings, I purpose pointing out as clearly as I can the expectations which they may indulge of deriving benefit from the Bath waters. It is from this shame that many young women have fallen victims to the impostures of quacks, and have had their constitutions destroyed

merely because there was secrecy in procuring the medicines.

It is a horrible circumstance to consider in a general view, that the health, the comfort, and the lives of mankind are entrusted frequently to men, whose previous habits of life and modes of education are so totally improper to qualify them for so serious and so important a branch of knowledge as the science of medicine; or as is particularly observable with quacks, that any set of men should so far lose all sense of truth and decorum as to promulgate such indecent and unfounded narratives of disease as are so constantly published in our daily prints. In a country where decency and morality are upheld, such proceedings are a scandal upon society and upon human nature, and can be looked upon in no other light than as base attempts to defraud mankind by the most consummate misrepresentation and falshood. I will venture to say, that the publication of such indecencies, even supposing, which is by no means the case, that relief was obtained from quack medicines, does more mis-

chief by such descriptions than any benefit can compensate that can be derived by any medical treatment which is or can be enforced by them.

Before there has been any menstrual discharge, and even before the usual time of expecting it, many young women are afflicted with a variety of bad symptoms; but when it does not appear at the accustomed time of life, there come on a pain and weight in the head, giddiness, a pale and bloated countenance, indigestion, loss of appetite, pains in the stomach, and a sense of fullness in the bowels, pains in the breast, back, and whole body, great lassitude, fainting and melancholy. I have often remarked there has been a cough, which in consequence of the languid state of the system and the general cachectic appearance has been suspected to be consumptive. This cough, however, when the menses have appeared, usually goes off. There is a great number of disorders which come on when the menses do not appear, but whether they originate in consequence of such a retention, or

are the cause of such retention is not in all cases clearly to be ascertained. Indeed in many instances the menses cease in consequence of disease, and appear again as health is re-established. The true chlorosis, however, which I mean first to investigate, is a very well marked disease. I have lately met with a case of chorea sancti viti appearing in a girl of fourteen, who had never menstruated, which was cured by steel medicines. This disease was evidently to be attributed to the same cause as ordinary chlorosis. It not unfrequently happens that young women are troubled with fluor albus about the time of puberty, which goes off as they acquire strength and become regular in the monthly discharge. It very frequently happens that very little medicine is required to promote this salutary discharge. I have known a very great derangement of the system completely relieved by once taking a pill composed of equal parts of soap and aloes. The aloes are certainly very efficacious where the cachectic symptoms are not very great. They determine at once the blood to the uterus, and prevent the chloro-

tic symptoms from gaining ground. But in all stages of chlorosis where there is costiveness, purgatives are proper, and they are to be recurred to preparatory to the use of the Bath waters.

There is no disorder, wherein there appears at times more medicine necessary than in chlorosis; yet after the fullest course the merest accident will promote the discharge. After a long course of steel medicines, the slightest determination to the uterus will frequently effect the intended purpose. It is under such circumstances I apprehend that benefit is derived from electricity, fumigations, and even warm bathing. We certainly observe that mechanical powers, or at least that mere mechanical effects very frequently further the intentions of cure. The union of the iron with warm water, by merely bringing a larger number of parts in contact with the solids and fluids of the body, and the enlargement of vessels by the external application of warm water must produce effects in some measure dependant on such mechanical means. Now if the iron

in the Bath waters be minutely enough divided to allow of such great diffusion, for there is a difference in this respect though bodies be in a state of solution, and thereby of an incalculably minute application to the expanded fibres and fluids of the human body; we may, speaking with reference to mechanical disposition, expect a very great effect to be produced by a small quantity of it.

This is the case: for the Bath waters do certainly produce great effect with a comparatively small quantity of iron, and it is found that a greater effect is produced when the waters are drunk during the time of bathing. If the internal exhibition of these waters in chlorosis does not promote the menstrual discharge, it is found that drinking them during the time of bathing will frequently effect the purpose. If the body is in a very debilitated state, I would not recommend the use of the bath until I had given the waters some time internally. I would if possible strengthen the system by the waters, by air and exercise, and then endeavour to determine the discharge through

its proper channels. Warm bathing therefore should not be advised in all states of this complaint; nor should we, as is commonly the practise, order so constantly the application of hot water to the feet and legs. After a course of steel medicines, when the constitution has acquired strength, it sometimes requires only an aloetic medicine to cause the appearance of the catamenia. I apprehend this reasoning will be found strengthened by those vicarious hemorrhages which come from the skin, the nose, gums, &c. wherein some stimulants applied to the neighbourhood of the uterus direct the blood through the uterine glands or vessels.

With respect to the Bath waters in this complaint, I believe their efficacy is particularly apparent. The effects of almost all medicines are in a great measure lessened by the recourse that it is usual to have to their full doses. By beginning with large quantities the medicine sooner loses its effect, unless it should be found to take place early after its first exhibition.

Of all the steel medicines that I have been able to try in this complaint, the Bath waters appear of the most advantage. They oppress the stomach but little, and are not by any means so nauseous as the officinal preparations of iron. A much greater effect is produced by a smaller quantity of iron in them than in any preparation of the shops. The diffusion of the iron is increased by the warmth and briskness of these waters, and their exhibition is attended with pleasure and comfort to the patient. I think it is not adviseable to begin with purgatives of a too stimulating kind in this complaint, when there is great emaciation, but to commence taking the Bath waters after the body has been gently moved by castor oil, manna, or any other mild purgative.

It seldom happens that these waters disagree with chlorotic patients, and therefore the four ounce glass of the King's Bath water may be taken three times a day, without the precaution of begining with the milder water of the Cross Bath. If this quantity does not load the stomach, and no feverish

heat is excited; the full dose of the three large glasses may be entered upon. Accompanying this plan with fresh air and exercise, if the patient acquires strength, the warm bath may be tried, and the waters should be drunk during the time of bathing. It is sometimes desirable to apply the Bath waters warm to the feet and legs before the general bathing is commenced. There is a great convenience in this respect in Bath, the water can be brought at any hour in suitable tubs in which the patient can immerse the whole legs, the tubs being of a very convenient depth for that purpose.

By the foregoing means, we find that patients afflicted with this disorder acquire health and strength and a regularity in their functions. There is no austerity in the plan of cure, and nothing in it which disturbs the stomach of the already too much nauseated female. The medicinal preparations of steel are most highly disgusting.

There is an almost endless variety of symptoms, which comes on in consequence

of a want of regularity in the discharge of the catamenia. Although the menstrua are regular in time and quantity, yet they are frequently attended with very great pain about the region of the womb. Persons are sometimes obliged to keep their beds in consequence of the derangement they occasion in the system. Some women are particularly harrassed with very strong symptoms of hysteria at this time, which shew themselves in pains in the head, limbs, back, and stomach. The breasts are particularly full and painful at this time. A fixed pain comes in the head of the most acute kind, and of a size to be covered with the top of a finger. I have observed, that these symptoms of difficult menstruation arise frequently in women who are troubled with fluor albus, which being a disease of great debility, points out the plan by which these symptoms can be relieved. Dr. Heberden observes, "that warm bathing, sitting over the steam of hot water a few mornings before the expected return of the catamenia Bath waters both externally and internally, have all been employed against this com-

plaint and with advantage." Although there appears at this time a turgescence in the blood vessels, and although the blood appears to be determined in a peculiar manner to the head, yet the general plan of cure is not what is occasionally pursued, by blood letting, blistering, &c. I have seen these symptoms rendered permanent, and all the mischief increased by the evacuant plan. Where these hysterical symptoms are accompanied with *flour albus*, I cannot conceive there can be any difference of opinion as to the necessity of adopting a strengthening plan of cure. And as we cannot well suppose that the same disorder can arise from such different states of constitution as that in one case the evacuant, and in another, the strengthening plan of cure can be admissible, we may I think conclude from this conjunction of hysteria and *fluor albus*, that the hysteric symptoms do in every case denote a loss of tone or general debility in the system. I have seen all the symptoms of hysteria removed by a course of the Bath waters; and after blistering, bleeding, and in short the antiphlogistic plan had been re-

curred to without relief, I have found that a course of Bath waters has effected a cure.

I do not mean to enter into any theory in the present work, but I cannot help observing, that this common concurrence of hysteria joined with fluor albus, seems to shew that the symptoms of hysteria arise from debility, and that a well regulated course of strengthening medicines is the only means by which it can be cured.

I am aware that in many cases of hysteria there is a peculiar determination of blood to particular parts, and that the balance of the circulation of the blood may be so far destroyed as to make it necessary to bleed the patient; but I contend that the whole circulating system taken together would be found less powerful, and having less tone, if I may be allowed the expression, in this disease than in a state of health. I do not at present intend to inquire into the causes of this irregularity in the nervous and circulating systems, I only wish to point out that I have found a course of strengthening medicines,

among which the Bath waters appear most highly beneficial, to be the plan by which we may expect permanently to relieve hysterical complaints.

There are other very distressing symptoms which arise in consequence of an irregularity in the discharge of the catamenia. Eruptions frequently appear on the face, which though not dangerous are most highly distressing. Patients are sometimes recommended to live low, and to take but little nutriment in such cases, from a notion that the pimples arise from what is called a richness of blood. I have found, however, that highly nutritive food and strengthening medicines have effectually removed this troublesome complaint. The Bath waters by containing iron, and thereby promoting the menstrual discharge are most highly proper where these eruptions are accompanied with an irregularity in that function.

There is another state of disorder arising pretty nearly from the same causes with the foregoing, to which many young women are

subject. An habitual head ache, pains in the stomach, great lassitude, and much irregularity in the bowels mark the complaint I mean. The symptoms are not usually attended with an absolute suppression of the menses, yet the discharge is not in every respect healthy. I have found in many instances that the keeping up a constant action on the stomach and bowels, has been very efficacious in removing the very distressing symptoms of this complaint. For this purpose, a powder composed of about two grains of ipecacuanha powder, six grains of rhubarb, and five grains of aromatic powder, taken every night, or every other night, has frequently removed these troublesome symptoms. It is not, however, to be expected that this alone can prevent the occasional recurrence of the symptoms: I have therefore generally recommended at the same time the internal use of the Bath waters.

It appears from the observations of M. Mandell, a medical professor at Nancy, that the state in which the iron exists in

the Bath waters is the most proper for the cure of chlorosis. I extract the following passage from that respectable monthly publication, the Medical and Physical Journal. M. Mandel explains the recent system of Dr. Rollo, who maintains that the greater or less quantity of oxygen in the blood, is the cause of several disorders. Without overturning this principle, he opposes the author's application of it to certain diseases, particularly chlorosis, which, he says, is determined by the smallest quantity of oxygen, and against which he recommends the metallic oxyds, as the most proper to furnish the oxygen. He, on the contrary, proves that this disease is subdued by medicines calculated to lessen the quantity of oxygen, rather than increase it; that it is cured by iron which has undergone no preparation, but the minutest division of its particles; whence he concludes that we ought not to consider oxygenation, but rather ferrugination, as the efficient cause of cure.

From what I have now said, it appears that the Bath waters are admirably calcu-

lated to remove that languid and emaciated state of constitution, which arises so frequently among women in consequence of an irregularity in the discharge of the catamenia. It is necessary, however, to point out, that the waters are very hurtful where there is any inflammatory state or fever in the system, and that they are absolutely pernicious where there is any hectic fever.

There is no disorder in the cure of which the Bath waters have been more celebrated than Leprosy. This term comprehends in general a great variety of cutaneous affections, it being indiscriminately applied to all those eruptions of the skin which are scaly. As under similar states of constitution these different diseases of the skin are treated in a similar manner, it is not perhaps very useful in a practical view to make any very nice distinction between their several appearances. This disease, however, appears under different forms, according to the climate and the habits of life in which those who suffer from it live. The *lepra græcorum*, is one of the most disgusting and

odious diseases that afflict mankind. In Egypt, Turkey, &c. where it rages with all its fury it is in its circumstances a most loathsome distemper.

It is very difficult even in the mild form in which it appears in this country to remove it completely. Although the constitution is in general but little affected in this disease; yet I apprehend it is in numberless instances to be considered as a constitutional disorder. A long course of high and intemperate living with excesses of a debilitating nature predisposes the body to this as well as to a great variety of other disorders. A natural debility of constitution likewise predisposes to it. People whose constitutions have been broken down by disease, or by long courses of mineral medicines, are likewise subject to this disorder. Eruptions on the skin are also frequently preceded by a long train of most distressing affections of mind as well as body, which disappear when the eruption shews itself. It is astonishing what a quantity of distressing symptoms are removed by the appearance of a blotch on the skin. I

have known the most violent hysteric symptoms which in some instances have amounted nearly to insanity, rendered perfectly quiescent as soon as a red blotch has appeared on the nose. The nervous stages of what are usually called scorbutic complaints are inconceivably distressing. These cutaneous disorders frequently prove the happy crisis of some distempers otherwise mortal.

I have known a great disposition to asthma entirely removed by a bad cuticular eruption. Nay, internal inflammations in the viscera of the most dangerous kind frequently give way to an eruption on the skin. Diseases of the skin, although they are so much dreaded, may prove of the most beneficial nature by removing some of the most dangerous diseases to which we are subject.

If diseases of the skin prove thus critical, and of this we have daily proof, in removing disorders otherwise dangerous, we have a mean of relief when we can affect the skin so as to produce a similar action. The whole history of blisters, setons, &c. and

even warm bathing evince this. The consent that is established between the skin, the stomach and other internal parts of the body, although it causes a great variety of morbid external affections, may yet be considered as the best provision that could be made for the removal of many very dangerous internal complaints. So various are the affections of the several parts of the human frame, that I do not conceive any one general law will obtain in respect to the production of these cutaneous diseases: it has been said that the application of cold to the body when much heated, is the cause of these cuticular eruptions.

I think I have been able to detect many other causes of these diseases. The predisposition to cuticular eruptions is in some people so strong, that I have known a little friction on a part produce herpes. The sting of an insect will sometimes produce a spreading scaly thickening of the skin. The change even of temperature from heat to cold produces leprous or herpetic appearances. The drying of a sore has caused first herpes on

the part, which has afterwards spread over the whole body. The irritation which is occasioned to the neighbouring skin by the eruption itself increases the disorder. These diseases are connected with many derangements of the system as, for example, with the obstructions in women.

If we attend carefully to the natural progress of complaints, we may frequently observe the modes by which diseases may be cured. Cutaneous eruptions frequently excite upon the neighbouring vessels erythematous inflammation which throws off the crust which is formed; and frequently in consequence of the new action prevents any from forming afresh. When this disease therefore is merely local, the exciting a small degree of inflammation will often remove the eruption. Some nicety is required in exactly proportioning the irritation; and this is, I apprehend, the effect produced by the medicines usually employed, such as the preparations of mercury, tar, &c. As the constitutional affections which often precede these eruptions usually disappear when they

break out, the cutaneous disorder is therefore principally to be considered in this place. What is usually guarded against, the suddenly checking and thereby driving in, as it is expressed, the complaint is to be cautiously attended to: for as diseases of internal parts are relieved by the eruption, the suddenly checking such a salutary action on the skin must be attended with danger. Nature must be here assisted, not checked in her operations. I do not imagine that the warm bath benefits these complaints merely by relaxing the skin and promoting perspiration, but by exciting an action on the skin which counteracts the herpetic effect produced. It is thus also that I apprehend benefit is derived from sea bathing. I generally observe that where the skin under the eruption appears red after the bath, that there we may expect most benefit from it.

The Bath waters do not relax the skin so much as ordinary water at the same temperature, and I have found that I have increased the advantages of the application of the Bath waters by assisting their own

powers by means of neutral salts, whose bases are iron or zinc. I have seen the most decided advantage in these distressing complaints obtained by an exact attention to the precise quantity of these substances, requisite to produce the necessary strength or irritation; and I do not doubt but that most of these disorders may be cured by this plan.

We hear of numbers of all ages, sexes and constitutions using the same means to attain the same ends, and that the proportion of cures is very great. It is nevertheless extremely necessary to attend to these several differences, for it is only by accurately proportioning our medicines, and among these the Bath waters as one, to the state of the system that we can rationally hope to render the cure certain.

I have already said that the Bath waters contain iron highly divided, and that it is applied to the body in a very active state. I have applied ordinary warm water, common water with a metallic salt dissolved in it, and the Bath waters, and the effects of the

two last were similar upon herpetic complaints. They were decidedly of advantage. The strengthening the cuticular vessels, or causing in them a trifling irritation, appear the best means to be employed for the removal of herpetic eruptions.

It would far exceed the limits of such a work as the present to enter into a description of all the varieties which obtain amongst cuticular eruptions, or to point out all the stages of these complaints wherein the Bath waters may be resorted to with rational hopes of success.

Where such a variety of medicines is attended with success, as those that have been applied in the cure of lepra, and where those medicines, as is here the case, have such very different powers, we must be allowed to suppose that some trifling action which is produced in common by all is the cause of their being so much extolled. The oxygenated ointment of the French, which is composed of nitric acid and hog's lard, in the proportion of two drachms of the former

to one pound of the latter, I have found in a great variety of instances to be as efficacious as the unguentum hydrargyri nitrati of the London College.

The mercurial medicines which are applied in these disorders, may perhaps owe their powers to the irritation which they occasion; indeed in a great number of cases I have been led to suspect, that the mercury which is often employed may be entirely left out of the compositions. Some general principle also may be suspected to exist, when the same medicine in one person's hands produces what it has failed to accomplish in another's. The exact point of action may be induced by a medicine, and chance may have a very great share in the accomplishment of a cure.

When these complaints, as is very common, are accompanied with much constitutional derangement, a reference must be had in a plan of cure to such disorder. The great variety of such affections precludes the possibility, within the limits I now pro-

pose to myself, of a full description of them. Where the same medicine, as for instance the Bath waters, is applied indiscriminately to these disorders, although existing in a great variety of constitutions, I cannot help suspecting that we have not yet arrived at a rational mode of applying them, or at a knowledge of their *modus operandi*.

It is not likely that those powers which the Bath waters possess should apply universally, or should be exactly proportioned to every state of constitution which is observed in those afflicted with cutaneous complaints. It is not philosophical to refer to specific powers, neither is it consistent with our knowledge of nature to believe that the same medicine will apply universally.

Dr. Falconer says that the method in general pursued is to order the patients to bathe twice or thrice a week, according to their age, strength, and other circumstances. This, after a few times trial, commonly causes an abatement of the itching, and an incipient desquamation of the leprous

eruption, and of consequence renders the skin more soft and pliable. This course is accompanied with a direction to drink the waters, which at a medium are taken in the quantity of a pint daily, and are thought thus to second the good effect of the bath, by promoting an easy and gentle perspiration. If the amendment appears to proceed according to expectation, no other medicines are given, but occasionally such as are opening if the body be costive.

I have known many cured of very bad leprous or herpetic eruptions by a long course of bathing in the Bath waters, and I have seen where a much shorter time has been requisite for a cure, when the Bath waters have been accompanied by other medicines. The Bath waters have appeared to me very serviceable in cleansing the skin, and where the cuticle was irritated in curing the disorder. I have seen the very best effects result from adding the *zincum vitriolatum* to the Bath waters when they have been locally applied; and I apprehend we are to attribute to the iron the difference

between these waters and ordinary warm water. Having therefore a bath of such magnitude, the waters of which are charged with a very active preparation of iron, it is no wonder that at Bath so many are relieved from these complaints, and that so many flock hither for the purpose of being cured.

As the bathing likewise in these waters, is usually continued so long a time, it is not surprizing that the accumulated effect of the iron and hot water should produce a cure. I presume to say, however, and I believe I am warranted by the experience I have had, that the Bath waters are, when judiciously applied, the best remedy we know for these complaints; but at the same time they do not fulfil every indication. When assisted by other medicines the Bath waters may be so applied, as that those who come hither for relief may indulge a very well founded hope that they shall here receive permanent benefit. I cannot here enter into a description of the constitutional affections which accompany these disorders; I can only observe that there is frequently a very marked

state of general debility. The internal medicines therefore that are used are of the strengthening or tonic kind as the bark, &c. The internal use of the Bath waters assists in fulfilling this indication.

Reasoning a priori from the general effects of the Bath waters in other complaints, we should be induced to consider their application in paralytic affections extremely hazardous. The causing a great determination of blood to the head must be extremely dangerous in paralytic complaints. People of a full habit of body, who have incautiously taken these waters, have been seized with apoplexy. They produce indeed in all plethoric people some symptoms approximating to that fatal disorder. When however there are no particular symptoms of congestion on the brain these waters are of very great service. In those paralytic affections which arise from the introduction of mineral poisons into the system, the Bath waters have been found singularly efficacious. Dr. Falconer, says, "that the general practice at the Bath Hos-

pital in this complaint, the lead cholic, is first to administer a gentle dose of purging physic, after which the waters are ordered to be drunk cautiously; and if any costiveness should return, the cathartic is occasionally repeated, or some opening mixture or pill directed to be taken when necessary. In a few days the use of the pump on the wrists and fingers is directed, and sometimes the bath joined with it. The pump is generally used daily, from fifty to two hundred strokes at a time. If the amendment goes on favourably, no other method is necessary; but it often happens, that after the use of the waters for about a month or six weeks, and after considerable benefit has been received, the amendment will seem to be at a stand. In this case it is usual to advise the use of the waters to be laid aside, and blisters to be applied sometimes to the wrists, and at others to the external muscles of the arm between the elbows and wrist, and to be kept running a few days and then suffered to heal. The pump is then applied a second time, and, it is observed in most instances, with much better effect than before.

This process is repeated, if necessary two or, three times ; and it often happens, that very obstinate and deplorable cases are thus happily recovered.

It is a common observation, that in cases where the symptoms are violent, and the complaint is of long standing, or has recurred repeatedly, that the muscles which form the ball of the thumb are often wasted in such a manner, as to leave a considerable hollow instead of a prominence in that part. This circumstance is generally looked upon in the London Hospitals as a mark that the patient will not recover the use of his hands. Many of the patients, however, sent to this place, have recovered the use of their wrists and hands, notwithstanding this symptom. I have seen, Dr. Falconer remarks, two cases of this complaint, in which the deltoides muscles were so much wasted, as to give the shoulder the appearance of being dislocated downwards into the axilla; both of these patients however got well. The number of patients admitted into the Bath Hospital for this complaint, from May 1751,

to May 1764, amounted according to Dr. Charlton's account, to two hundred and seventy six, including those said to be from mineral effluvia. Of those, two hundred and fifty six were cured or benefited, six were no better, ten died, and four were improper subjects for a trial of the waters. By a later account it appears, that, of two hundred and sixty four patients admitted from January, 1, 1776 to December, 31, 1785, one hundred and seventeen were cured, one hundred and thirty eight were much better, five were better, two no better, and only one dead! What proof can be more satisfactory of the safety as well as efficacy of the Bath waters in this species of Palsy?

Nothing certainly can be more decidedly advantageous than the effects of the Bath waters in this species of palsy. They seem not only to assist in the expulsion of this noxious mineral from the coats of the stomach and bowels, but they obviate the deleterious effects produced by its lodgement there. As the practical advantage of these

waters is fully and happily ascertained in the removal of these dreadful symptoms, it is not necessary for me here to enquire into the *modus operandi* either of the poison or the medicine.

I cannot help observing, however, that the only mineral friendly to the human constitution is iron, and that it here appears to be an antidote to the deadly effects of the others. Iron forms one of the component parts of the human texture, and is particularly abundant in the blood, the most essential fluid in the human body. Of so great a number of metals, iron and manganese alone are found in an organized body, whether animal or vegetable. Iron is in greater quantity in the flesh than in the bones; but in the greatest proportion in the *cruor* or red part of the blood. The addition of iron to the animal frame must be requisite to a certain degree, to recruit and keep up the balance in the several compositions of the system, and as these fluids are formed in consequence of certain chemical changes which take place in the stomach, it is of

importance that the substances which are introduced into the stomach, should be determined in some measure by the ends they are to answer. Now the presenting to the stomach this necessary metal, both for the support, as well as, under given circumstances, for the repair of the constitution, in a state where it is evidently extremely ready for combination, must be attended with the happiest effects.

The waters of Bath are presented to us elaborated to such an extreme degree of nicety for combination, that when they remain quiet for only a few minutes, a thorough change takes place in the state of the combination of the iron. It either dissipates or becomes inert; so that it is impossible to detect it by the nicest chemical reagents. For the experiments on this subject I must beg leave to refer my reader to my former treatise on the chemical properties of the Bath Waters. I have there shewn that the iron is nearly in a metallic state; now in that state it is certainly more disposed to certain combinations than when it has been

calcined or united with acids, even though the acid should be the carbonic acid. Although I look upon the oxygene of the French chemists as a non-entity, and their theory as absolutely unsupported by facts, yet I believe that certain combinations taking place between some principles in these waters and the iron in the state of division in which it there appears, render soon after their issuing from the earth the iron of less activity, and destroy that medicinal effect which is so apparent when they are drunk immediately from the springs.

As the Bath Waters are so decidedly of service in removing the deleterious effects proceeding from the poison of lead, and as the iron they contain seems so beneficial in removing the debility, the consequence of it, I have made this digression to shew the extreme nicety of combination which obtains in these waters.

I am even disposed to think that the action of pumping whereby the pressure of the atmosphere is taken off from the water,

brought up, must by the expansion of the gasses contained in it, alter the nature of the combination. At all events it would be desirable to have the waters for internal use exactly as they are presented to us at their sources. This might have been easily contrived by inclosing the head of the spring in such a manner, as that the water might have flowed over a stone bason into the baths, as I am informed is the case with all the most celebrated medicinal springs. The great heat of these waters at their sources, and the immense quantity, nearly six thousand hogs-heads daily, would admit of such an arrangement; particularly as the water for internal use would then be taken immediately at the spring, and would not, as is now the case, have been in continual contact with the water of the open bath.

Nature has been extremely bountiful in making so large a provision, the benefits of which should be extended to the greatest possible degree. The pump communicates with these waters in the reservoir under the centre of the bath: this is certainly a very

improper method for communicating the source of these waters with the bath; the weight of a column of water the height of the water in the bath is on the springs; the temperature of the water also is lowered by the exposure of a large surface to the air, and as heat is speedily diffused and particularly as it ascends, the heat of the springs must vary according as the bath is full or not. Another inconvenience is from the diffusion of the ingredients of the waters, which must and do vary from the circumstance of their remaining in contact with the large body of water in the bath.

In those states of palsy where there is a fulness of vessels or any peculiar determination of blood to the head, the use of the Bath waters is inadmissible. When attended with head-ache, giddiness, or any symptom of plethora, the Bath waters may be expected to aggravate the symptoms. When, however, all symptoms of plethora have been removed by blood-letting and evacuant medicines, and when the paralytic affection remains, the Bath waters are recommend-

ed to be taken. The Bath is also then advised.

I have already mentioned that we frequently perceive when a peculiar action has been successively induced by medicine, that that action will sometimes be established as a habit in the system. Now, if this were general, as the free use of the limbs is frequently obtained during warm bathing in these complaints, we should imagine that in course of time, and repetitions of bathing, the use of the limbs would return. We often see this to be the case.

No genus of disease seems to comprehend such a variety of affections as palsy; proceeding from the head, apoplexy, general palsy, and hemiplegia; from pressure on the spinal marrow and the nerves from the spine proceeds a loss of power in the lower limbs, paraplegia. Pressure on a nerve produces a loss of power in the parts to which the nerve goes; but instances are not wanting where a contrary effect has been observed, where an injury has excited paraly-

tic affections back towards the origin of a nerve.

As the greatest care and circumspection are required in the medical treatment of paralytic affections, it cannot be supposed I can point out with all the accuracy the subject demands, the several states of this disorder wherein the Bath waters are indicated. The pumping on the back where there exists a curvature, and where there is in consequence a loss of power in the lower limbs, has been found of essential service. It is to be observed that even the external application of the Bath waters is prejudicial where there exists any inflammatory tendency, and particularly where there are any symptoms of hectic fever. Where there has been much debility and languor in the circulation, the internal use of the waters has in many instances within my knowledge effected permanent advantage; and the reports of cases as published by Dr. Falconer from the registers of the Bath Hospital, evince the decided advantage derived from the Bath waters in the cure of the palsy. Dr. Heberden is de-

cidedly of a contrary opinion; he says, "When the patient is judged to be pretty well out of the reach of present danger, he must in the next place be assisted in freeing himself from the several disagreeable reliques of the former attack, and in preventing a return.

"For these purposes a journey to Bath is generally proposed; about which physicians seem to be divided in their opinions; some thinking, that the drinking and bathing at Bath help to recover paralytics, whilst others are persuaded that they are the ready means of turning a palsy into an apoplexy. If I were to judge from my own experience, I should say that the Bath waters do neither good nor harm to these patients; some of whom gradually recover while they stay at Bath; and others suffer a fresh attack and die there; just as they would in any other place. I therefore cannot advise Bath; but if it be desired by the invalids themselves, or any of their friends, there is no reason to hinder their going thither." Dr. Thomas says, "that warm bathing is a remedy which

has been much employed in most cases of palsy, as an external stimulant. In those, however, which arise in sanguineous habits, from a congestion of blood in the vessels of the brain, its use would in all probability prove injurious, both by stimulating the solids and rarefying the fluids, and thereby becoming a stimulus to the sanguiferous system; but in those cases where palsy has arisen in consequence of the application of narcotic powers, diminished vital heat, or an enfeebled or pituitous constitution, the use of warm bathing will be likely to prove highly beneficial. In palsy, we ought therefore most cautiously to ascertain whether an increased or diminished degree of vital heat or action in the sanguiferous vessels is the cause of the disease. Whether the natural baths, such as those of Bath, in Somersetshire, &c. possess more efficacious qualities than the ordinary warm ones, seems a matter of doubt with many practitioners, as the substances with which the former are impregnated are but trifling in point of quantity. In my opinion, they are entitled to a decided preference.

“When a natural warm bath cannot be resorted to, an artificial one may be substituted; and this may be made by dissolving a proper quantity of ferrum vitriolatum in the water, and impregnating it with fixed air.” The difficulty or impossibility of impregnating warm water with fixed air, renders the imitation, even if the ferrum vitriolatum were contained in the Bath waters, almost impossible. However, if a warm bath, wherein this metallic salt is dissolved, has decided advantage in this complaint over ordinary warm water, we have every reason to believe that a decided preference is merited by the natural chalybeate and thermal waters of Bath.

Having fulfilled my intention of pointing out most of the symptoms of the disorders in which the use of the Bath waters has proved beneficial, I proceed to give a general view of their effects when internally taken or externally applied.

The general effects of the Bath waters upon the constitution, are such as we com-

monly see arise from medicines of the tonic and stimulating kind. All the medicinal preparations of iron produce somewhat similar effects to those arising from the use of the Bath waters. Like all other medicines they produce different effects upon different constitutions although each may be in a state of health. The variety of constitution, and the facility with which some important organs are affected in some habits, constitute varieties in the effects of the same medicine. A violent head ache, oppression at the stomach, thirst and dryness of the tongue, giddiness and general heat over the system are the symptoms these waters produce when they disagree. When on the contrary, however, they produce a cheerfulness, do not oppress the stomach, cause no head ache and pass off readily by urine, then they agree. Many who have rashly taken these waters have soon complained of vertigo, and great pain in the head; and instances are not wanting where their improper exhibition has produced apoplexy and death. Like steel medicines they have a peculiar action on the heart and arteries, cause a

greater fulness and frequency of the pulse, and in a particular manner determine the blood to the head. Although there are some peculiarities in the composition of the Bath waters which essentially contribute to moderate the effects and restrain the action of the iron they contain, by preventing them from loading the stomach, yet like that metal given in our officinal preparations, they produce general good effects in weak, lax, and pale habits, and in chronical disorders proceeding from langour and debility. In cachectic and hypochondriacal patients they strengthen the stomach and the organs which serve for the digestion of the food, and thereby give strength to the whole system. They quicken the circulation and raise the pulse, and they promote when they are deficient, and restrain when immoderate, the perspiration, urine and uterine discharges. By the same strengthening power whereby they promote deficient and restrain redundant discharges where the suppression or flux arises from relaxation and debility, they on the other hand increase fluxes and confirm obstructions when they

proceed from tension, rigidity or plethora in the system. They produce in plethoric habits, where the circulation is quick and where there is fulness, heaviness, dullness, heats and flushings which would extend to inflammatory fevers or to ruptures in some of the over distended vessels. They therefore increase or produce active hemorrhages, and are found upon all occasions to aggravate fevers attended with local inflammations. They produce heat in the system, and when improperly administered they diminish the natural secretions of the body. They induce costiveness and the insensible perspiration is checked by them. Although they thus aggravate the symptoms of certain disorders, and are highly detrimental in certain states of the human constitution, in others their qualities are highly proper, and they prove of the most beneficial service.

In relaxed habits the arterial system is invigorated, and the powers of the stomach restored by their use. The secretions which have been preternaturally discharged are restrained, and a proper degree of tone esta-

blished. The pallid and relaxed cuticle assumes the ruddy hue of health, and a firmness of fibre, and elasticity of muscle is established throughout the system. These effects are observed to follow their use in leucophlegmatic habits, they are in short peculiarly contraindicated in all inflammatory states; but in all emaciated, nervous and leucophlegmatic habits their exhibition is attended with the highest advantage. The Bath waters are particularly dangerous in complaints of the lungs and liver, especially where there is any tendency to inflammation; and where there is hectic fever from diseases of these organs, they are found to produce an aggravation of all the distressing symptoms.

It has been found that the use of the Bath waters has sometimes caused an irritation in the mucous glands of the urethra thereby producing a discharge which has in some instances been mistaken for gonorrhœa.

It is well known that the Bath waters, when externally applied, do not relax the

cuticle so much as ordinary hot water; and it is found that by pumping on a part a very apparent degree of strength is acquired. This power of applying the stimulus of heat to the skin, and thereby determining the blood to the surface of the body without the relaxation which arises from the use of ordinary warm water, seems peculiar to the waters of Bath. Although we are not yet acquainted with the reason why iron or other metals produce a tonic effect on the skin, yet we are sufficiently acquainted with the fact, and that is all I wish to establish in this treatise. In cutaneous eruptions it is obvious that medicated baths are often of service, and we often see such intentions fulfilled by the external use of the Bath waters.

But the application of hot water to the surface of the body is attended with much relief in many very troublesome and lingering complaints. I have already noticed that a repetition of actions induced in the body produces in time a habit; where there is therefore a disturbance in the regular balance of the circulation, the new action by deter-

mining to the skin is found to restore that equilibrium so essential to health. As there is a very great connection between the skin and stomach, warm bathing appears highly favourable to the healthy action of the stomach and bowels. It is on this account that warm bathing is particularly serviceable in relieving cholics and obstructions in the bowels, and in promoting the discharge of the biliary secretion; it is on this account also that the obstructions so common to the female sex are removed, and the discharge determined thereby to its accustomed channels. Besides the immediate advantage of removing the eruptions and thereby cleansing the skin, it induces a new and often healthful action.

The impression of a heat greater than that of the natural heat of the body which receives it, is said to be a direct stimulus, and as such it increases the force and activity of circulation in the vessels to which it is applied, renders them full and turgid, and according to the force of this stimulus occasions pain, redness, inflammation, serous

effusion, or entire disorganization. Although I have avoided entering into any theory on the subjects contained in this work, I cannot help expressing my surprize at the admission of this word, stimulus, in this place. It appears to me that the diameters of the vessels are enlarged by heat, and that as the circulation is constantly going on, a larger quantity of blood flows into these enlarged vessels, and that this is the cause of the turgescence observable on immersing any part of the body into hot water. When this is continued for some time, the vessels remain enlarged in size, and in their collapse are not uniform, and therefore the parts become flabby and loose; but with the Bath waters this enlargement of the diameters of the vessels is not attended with the subsequent debility observable in them after the use of ordinary water at the same temperature. The diameters of vessels in local inflammations are enlarged, and the means we employ seem calculated to give strength and tone to them.

The solutions of lead, of zinc, and of iron, are applied to for that purpose. It seems

indeed that local inflammations are in consequence of debility of the vessels of the part, and that the vessels are increased in diameter. Where there is debility of the extreme vessels, as in cutaneous eruptions, the Bath waters are found eminently serviceable.

There appear to be three powers continually in action in the human body, the mechanical, the chemical, and the vital : a derangement in either of these causes a correspondent change in the others. If the vessels are mechanically enlarged the fluids shew new chemical properties, and the vital action is likewise altered. As these powers are continually in action both in disease and health, it is of importance to attend to them both in the prevention and cure of disease. Warm bathing appears to me to be primarily mechanical, because the surface of the body is but little susceptible of either chemical or vital changes. Disease however on the skin renders it more disposed to be affected, and consequently the means we employ, as warm bathing, more readily induce

chemical and vital changes. The hard crust that forms upon the skin when diseased is owing to external chemical changes and combinations taking place in the fluids which ooze out. This crust thus chemically formed serves as a mechanical covering to protect the tender parts beneath from being irritated by the external air, until the vital actions shall have completed the operations which are there going on. It would be pleasing as well as instructive to pursue this investigation, but it would carry me too far from my present plan. By attending, however, to these important considerations in local eruptions we may be able to relieve and cure them, and we in reality do find that they are relieved and cured. It is absolutely necessary, although it is but little or insufficiently attended to, to make the nicest distinctions between the several states of cutaneous eruptions, and to proportion our means of cure to those several states. I am convinced that the mere attention to the relaxing the cuticle, and increasing the perspiratory discharge is not sufficient in the removal of cutaneous complaints. Neither

does the indiscriminate use of the bath necessarily produce a cure. All the means employed in medicine should be adapted to to all the circumstances of the disorders, for I apprehend in medicine, as in physics, the same agents under similar circumstances always produce the same effects. The idea of specifics as formerly held should for ever be banished from the science of medicine. The Bath waters, therefore, because of their chemical impregnation, do when judiciously applied produce correspondent and salutary effects upon the diseases of the skin.

In relieving the pains of rheumatism, and in destroying any morbid state of circulation, the Bath waters are found of advantage. They excite heat and power in paralytic limbs, and they have the advantage of not inducing so great a degree of debility as ordinary water.

It is usual before a person enters upon a course of the Bath waters to prepare the body by some purgative medicine, and it is also found necessary to obviate costiveness

during the use of them. Although chemical reagents do not shew any very great difference in the chalybeate impregnation in the three baths, yet the King's Bath both to the taste and in its effects on the constitution is evidently the strongest. It is therefore necessary that patients begin with either the Hot or Cross Bath water. It is usual to recommend at first, two or three of the smallest sized glasses of water to be taken in the forenoon, one before breakfast and two between breakfast and dinner. The quantity is increased according to the effects that are produced on the constitution. From the largest dose of the Hot or Cross Bath water, patients are recommended to the use of the King's Bath water beginning with the smallest glasses. All this however is regulated according to the disease and the constitution of the patient. As after taking these waters, they sometimes disagree, their use is occasionally to be suspended.

It may occasionally be adviseable to begin in some cases with even a smaller quantity than the smallest glass at the pumps. As it

is proved by experiment, that these waters quickly lose not only their briskness but also their mineral impregnation by being suffered to cool, it is always desireable that they should be drunk at the pump. However as this is not always possible, there are modes by which they can be carried from the baths with the least possible injury. This is done by immersing a bottle of the water fresh from the spring in some of the same water and closing it up in a tin case.

I beg leave to suggest, that as wood is not so good a conductor as iron or tin, it would be better to employ a case made of wood for this purpose. Every thing is here admirably constructed and arranged for bathing; in the private baths the temperature can be adjusted to any requisite degree, and every accommodation is to be found both for the ease and comfort of the patient. In the open bath the temperature of the water at the edge of the King's Bath is 96° and towards the centre, where the water issues, the heat is found to increase gradually to 114° or 116° , therefore in the open bath there is a differ-

ence of temperature according to the part wherein the person bathes. The temperature of the Cross Bath is still lower. As the water is discharged from these baths every forenoon, the time for bathing in the open bath is early every morning; in the private baths, however, baths can be prepared at any hour of the day and at any degree of temperature. The dry pump, as it is called, by which the water can be applied locally without the other parts of the body being wetted, can be recurred to at any time, and is admirably calculated to relieve stiffnesses of the joints, and to increase the activity of certain tumours. This mode of applying the waters produces frequently more effect than ordinary bathing, and can be adopted when bathing would be hazardous or pernicious. Where there is a loss of power or numbness in a part, this method of applying the waters is often found very beneficial.

I have said nothing in the foregoing pages of the silex, which I some time since discovered to be a component part of these waters, neither have I noticed the constitu-

tion of the air immediately over the baths, in consequence of the immense quantities of azotic gas, which are continually evolved with these waters. I apprehend we have not as yet any good grounds for estimating these things as medicinal agents. It appears, however, from such impregnations that the Bath waters are entitled to a very attentive consideration, both in a physical and medicinal point of view. I have endeavoured in the foregoing pages to give a general and particular account, with respect to the latter, of those symptoms of disease wherein much benefit may be expected from their use, and I have attempted to shew where their exhibition is contra-indicated.

With respect to the physical constitution of these waters much remains to be done. Since the publication of my former treatise, a series of experiments has been discovered, which bids fair to form a new era in the science of chemistry. The experiments to which I allude are those which result from the pile of Volta and its several modifications. The matter of heat, electricity and

the several aeriform fluids seem in consequence of this discovery to be brought much more under the controul of the experimentalist. I shall take the present opportunity of shewing that there are some strong objections to the theory of M. Lavoisier, which has with very few exceptions been universally admitted throughout the chemical world. I have already published my ideas on this subject, which were the first that appeared in that line, and appeared in Mr. Nicholson's Philosophical Journal; for on the first trials with the Galvanic pile I was convinced that the antiphlogistic theory of chemistry was inadequate to the explanation of the phenomena presented by it. Some late facts published by Dr. Carradori, strengthen the opinions I then formed, and unquestionably weaken the supports of the theory of M. Lavoisier.

Dr. Carradori mentions that it is known from the experiments of Vauquelin that vinegar will not calcine lead, unless it be in contact with the air. A piece of lead totally immersed in vinegar will not calcine.

He found, however, that when two pieces of lead were thus placed in strong vinegar at the distance of about an inch asunder, and these pieces of lead touched the two extremities of the pile of Volta, constructed with forty pairs of plates of zinc and silver, the piece of lead which touched the zinc side of the pile was strongly calcined. From this experiment it is evident that the vinegar does not calcine the lead, since no calcination takes place when the lead is plunged into it; neither could the oxygene come from the atmosphere since the access of the air is prevented. We must therefore conclude that in this instance calcination has taken place without the addition of oxygene. Some principle, however, does come from the end of the pile which causes the calcination of the lead; it is this principle I contend which appears to be negative electricity from the zinc end, and that from the silver end of the pile, which is positive electricity, combining with the water that give it aeriform elasticity; and form hydrogenous and oxygenous gasses, of which oxygene and hydrogen have not been proved to be the

bases. Water seems as an element to constitute the ponderable part of these two airs, and the specific differences between them appear to arise from those two states of galvanism or electricity, which give elastic aeriform fluidity to their common basis, water. When by combustion water is again produced, and these airs lose their aeriform fluidity, it appears that these two states of galvanism or electricity join to form ordinary fire. It was therefore from these considerations, that I concluded a paper which was read at the Royal Society with these remarks, that oxygene and hydrogene as the peculiar bases of oxygene and hydrogene gasses appeared to be non-entities, that the matter of heat was not a simple principle, that water was not proved to be a compound, and that the theory of the French chemists did not consequently explain the phenomena presented by the pile of Volta. The old philosopher Heraclitus gave a more consistent idea when he said—"πυρος θανατος αεσι γενεσις, και αερος θανατος υδατι γενεσις."

Meyler, Printer, Bath.



Cutaneous eruptions benefit from 79

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